

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Withdrawn) A structure for holding a substrate within a substrate bonding apparatus, comprising:
 - a stage having a contact surface;
 - at least one passage arranged within the stage and intersecting the contact surface;
 - a suction force applying means for transmitting a suction force a predetermined distance from the contact surface, wherein the suction force applying means is arranged within each passage, and wherein a portion of the suction force applying means is selectively projectable from within a respective passage to the predetermined distance from the contact surface; and
 - a vacuum pump generating the suction force.

2. (Withdrawn) The structure of claim 1, wherein the suction force applying means includes:
 - a pad having at least one vacuum hole transmitting the suction force to an operably proximate portion of a substrate;
 - a moving pipe in fluid communication with the at least one vacuum hole and the vacuum pump, wherein the moving pipe is movable within the passage; and
 - a driving part moving the moving pipe within the passage.

3. (Withdrawn) The structure of claim 2, wherein
the at least one passage has first cross-sectional dimensions;
the pad has second cross-sectional dimensions; and
the second cross-sectional dimensions are smaller than the first cross-sectional
dimensions.

4. (Withdrawn) The structure of claim 3, wherein the second cross-sectional
dimensions are substantially conformal to the first cross-sectional dimensions.

5. (Withdrawn) The structure of claim 2, wherein
the driving part comprises an actuator; and
the moving pipe is an axis of the actuator.

6. (Withdrawn) The structure of claim 2, wherein
the driving part comprises a step motor; and
the moving pipe is an axis of the motor.

7. (Withdrawn) The structure of claim 1, further comprising sensing means for
measuring a distance between the contact surface and a proximately arranged substrate.

8. (Withdrawn) The structure of claim 7, wherein the sensing means comprises an
interval check sensor.

9. (Withdrawn) The structure of claim 1, further comprising a plurality of vacuum holes arranged within the stage and in fluid communication with the vacuum pump transmitting the generated suction force from the contact surface.

10. (Withdrawn) The structure of claim 1, wherein the stage comprises an upper stage.

11. (Withdrawn) The structure of claim 1, wherein the stage comprises a lower stage.

12. (Currently Amended) A method of holding a substrate within a substrate bonding apparatus, comprising:

providing an upper stage having a contact surface and at least one passage intersecting the contact surface;

providing a suction force applying means within each passage for transmitting a suction force a predetermined distance from the contact surface;

arranging a substrate proximate the stage;

generating the suction force;

transmitting the generated suction force from the suction force applying means to operably proximate portions of the substrate; and

holding the substrate substantially parallel to the contact surface.

13. (Previously Amended) The method of claim 12, further comprising providing a plurality of vacuum holes within the upper stage transmitting the generated suction force from the contact surface.

14. (Original) The method of claim 13, further comprising transmitting the generated suction force from the plurality of vacuum holes to operably proximate portions of the substrate.

15. (Original) The method of claim 12, wherein transmitting the generated suction force from the suction force applying means comprises moving the suction force applying means with respect to the contact surface such that the suction force applying means is operably proximate the at least one portion of the substrate.

16. (Original) The method of claim 15, wherein moving the suction force applying means comprises projecting an end portion of the suction force applying means from within a respective passage to the predetermined distance from the contact surface.

17. (Original) The method of claim 16, wherein the projecting comprises arranging an end portion of the suction force applying means operably proximate a portion of the substrate.

18. (Original) The method of claim 12, wherein holding the substrate substantially parallel to the contact surface comprises moving the suction force applying means with respect to the contact surface.

19. (Original) The method of claim 18, wherein the moving comprises arranging an end portion of the suction force applying means within a respective passage such that the end portion is substantially flush with the contact surface.

20. (Previously Amended) A method of holding a substrate to a stage within a substrate bonding apparatus, comprising:

generating a suction force;

transmitting the generated suction force to an application point on a contact surface of an upper stage; and

transmitting the generated suction force to an application point at a predetermined distance away from the contact surface of the upper stage.

21. (Previously Amended) The method of claim 20, further comprising applying the generated suction force transmitted to an application point at the contact surface of the upper stage to at least one portion of a substrate.

22. (Previously Amended) The method of claim 20, further comprising applying the generated suction force transmitted to an application point at the predetermined distance away from the contact surface of the upper stage to at least one portion of a substrate.

23. (Original) The method of claim 22, further comprising transmitting the generated suction force applied to the at least one portion of the substrate from the contact surface of the stage.

24. (New) The method of claim 12, wherein the step of providing a suction force applying means within each passage for transmitting a suction force a predetermined distance from the contact surface comprises:

providing a first suction force applying means within a first passage for transmitting a suction force a first predetermined distance from the contact surface; and

providing a second suction force applying means within a second passage for independently transmitting a suction force a second predetermined distance from the contact surface, wherein the first predetermined distance differs from the second predetermined distance.

25. (New) The method of claim 20, wherein the step of transmitting the generated suction force to an application point at a predetermined distance away from the contact surface of the upper stage comprises:

transmitting a first generated suction force to an application point at a first predetermined distance away from the contact surface of the upper stage; and

transmitting a second generated suction force to an application point at second predetermined distance away from the contact surface of the upper stage.

26. (New) The method of claim 25, wherein the first predetermined distance differs from the second predetermined distance.

27. (New) The method of claim 25, wherein the first and second generated suction forces are independently transmitted.

28. (New) A method of holding a substrate to a stage within a substrate bonding apparatus, comprising:

arranging a substrate proximate to an upper stage, wherein portions of the substrate sag;
and

transmitting a suction applicator to a sagging portion of the substrate.

29. (New) The method of claim 28, further comprising:

generating a suction; and
transmitting the suction to the suction applicator.

30. (New) The method of claim 28, further comprising:

independently transmitting a second suction applicator to a second sagging portion of the substrate.

31. (New) The method of claim 28, further comprising:

holding the substrate substantially parallel to a contact surface of the upper stage.